EP203
AUTOMATIC
EXTINGUISHER
PANEL

Installation and
Maintenance
Manual
Approved Document No. DFU0002032 Rev 4
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**IMPORTANT NOTES**

THIS EQUIPMENT MUST ONLY BE INSTALLED AND MAINTAINED BY A SUITABLY SKILLED AND TECHNICALLY COMPETENT PERSON.

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**Equipment Guarantee**

This equipment is not guaranteed unless the complete system is installed and commissioned in accordance with the laid down national standards by an approved and competent person, or organisation.

This product has been manufactured in conformance with the requirements of all applicable EU Council Directives.

**Items supplied with the EP203 panel:**

- Installation and Maintenance Manual – Document No. DFU0002032 (this manual)
  - **Note:** This manual MUST NOT be left accessible to the general user.
- User Manual/Log Book – Document No. DFU0002031
- Shortform Installation Instructions – Document No. DFU0002033
- Accessory pack containing the following items:
  - 1 x Allen key (for unfastening/securing the panel lid)
  - 12 x 6K8, 0.25W (end-of-line resistors)
  - 1 x 1A HRC, 20mm ceramic fuse (spare mains supply fuse F1)
  - 1 x 5A F, 20mm glass fuse (spare battery fuse F2)
  - 1 x set of battery connection leads (red lead, black lead, green jump lead)
  - 1 x set of links for PLK1 & PLK2.

**System Design**

Fire alarm system and extinguisher system design are beyond the scope of this document. A basic understanding of general system components and their use is assumed.

To ensure a reliable system and limit the consequences of faults, we strongly recommend that a suitably qualified and competent person is consulted in connection with the design of the fire alarm and extinguisher system and that the system is commissioned and maintained to local design and installation regulations. The fire officer concerned with the property should be contacted at an early stage in case he has any special requirements.

The EP203 Automatic Extinguisher Panel (hereafter called the EP203 panel) is compliant with the following European standards:

- EN 12094-1 – Fixed firefighting systems – Components for gas extinguishing systems - Part 1: Requirements and test methods for electrical automatic control and delay devices
- EN54-2 and EN54-4 – Fire Detection and Fire Alarm Systems – Control and Indicating Equipment (EN54-2); Power Supply Equipment (EN54-4).
In addition to the basic requirements of EN12094-1, the EP203 panel meets the following criteria:

- **EN12094-1 Section 4.17** ‘Delay of extinguishing signal (option with requirements)’ delay time from 0 to 60 seconds.
- **EN12094-1 Section 4.18** ‘Signal representing the flow of extinguishing agent (option with requirements)’ to indicate the flow of the extinguishing agent.
- **EN12094-1 Section 4.19** ‘Monitoring of the status of components (option with requirements)’ by way of a low pressure switch input.
- **EN12094-1 Section 4.20.** ‘Emergency hold device (option with requirements)’ to enable the extinguishant delay time to be extended.
- **EN12094-1 Section 4.21** ‘Control of flooding time (option with requirements)’ to deactivate the releasing output after a set time period.
- **EN12094-1 Section 4.23** ‘Manual only mode (option with requirements)’ to disable the release of extinguishant via automatic detection devices.
- **EN12094-1 Section 4.26** ‘Triggering of equipment outside the system (option with requirements)’ by way of first and second stage contacts, etc.
- **EN12094-1 Section 4.27** ‘Emergency abort device (option with requirements)’ to inhibit the extinguishing signal until the emergency abort device has been deactivated.
- **EN12094-1 Section 4.30** ‘Activation of alarm devices with different signals (option with requirements)’ to indicate pre-discharge and released warnings using different sounds.

In addition to the basic requirements of EN54-2, the EP203 panel meets the following criteria:

- **EN54-2 Section 7.8** ‘Fire alarm devices (option with requirements)’ to enable an audible warning to be sounded throughout the premises upon the detection of a fire condition or the operation of a manual call point.
- **EN54-2 Section 7.11.** ‘Delay of the actioning (option with requirements)’ of fire alarm devices (sounders) so that an alarm may be verified before a premises is evacuated.
- **EN54-2 Section 7.13.** ‘Alarm counter (option with requirements)’ to record the number of instances the panel enters the fire alarm condition.
- **EN54-2 Section 10** ‘Test condition (option with requirements)’ to allow the automatic resetting of zones in alarm for testing purposes.

In addition to the requirements of EN54-2, the EP203 panel has volt-free relay contacts for fire and local fire that operate upon a fire condition. These are to be used for local control and signaling.
BASIC OVERVIEW AND KEY FEATURES

The EP203 panel acts as both a conventional fire alarm panel and an automatic extinguisher control panel. The panel is easy to install, programmable and incorporates a user-friendly LCD interface.

The EP203 panel's features include the following:

- Time-stamped event log
- Abort and hold functions for cancelling, or delaying the extinguishant release sequence
- Very low quiescent current drain on mains fail (40mA approx.)
- 128 x 64 pixel graphic LCD unit with two-colour backlight, provides a user-friendly interface for presentation of information, interrogation of data and programmable functions
- Front-panel mounted extinguisher release button and two keyswitches; one to enter access mode and one to toggle between automatic/manual modes of operation
- Powerful 3A, EN54-4 compliant, switch mode PSU rated @230Vac, 50/60Hz that combines the functions of a power supply unit, battery charging unit and battery monitoring unit
- Three-zone conventional detector circuits, line monitored for open and short circuit faults. Any zone combination can be programmed to activate an alarm and initiate the extinguishant release sequence
- Three conventional alarm sounder circuits (two x 1st stage, one x 2nd stage), line monitored for open and short circuit faults
- Monitored inputs for:
  - Manual Release, Flow Switch, Low Pressure, Mode, Hold and Abort
- Auxiliary outputs for:
  - Fire, Local Fire, Extract, 1st Stage, 2nd Stage, Fault
- Extinguishing output supports up to 2 x solenoids, or multiple ‘Metrons™’
- Adjustable extinguishant release time delay, duration and flooding time
- Alarm counter to record the number of times the panel has been in an alarm state
- Optional Output Expansion Relay Board providing additional volt-free relay outputs for: Reset, Mode, Discharged, Hold and Abort
- Connections for up to eight Remote Status Units (RSU) which provide remote indication of system status on an LCD unit with mode select and manual extinguisher release
- Connections for up to eight Economy Status Units (ESU) to provide remote indication of system status with mode select.
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- Pushbutton and keyswitch entry to three access levels (displayed on the LCD unit). Access Level 1 (AL1) is for general users, Access Level 2 (AL2) is for authorised users and Access Level 3 (AL3) is for engineers. See Figure 1, below.

Note: When selected, menus and sub-menus change from Title Case to UPPERCASE.

Figure 1: Overview of Access Level Menus
• System expansion connections for the following add-ons:

**Output Expansion Relay Board - Part No. EP212**
- a) One Output Expansion Relay Board can be connected.
- b) Provides up to five volt-free relay outputs (Reset, Mode, Discharged, Hold, Abort).
- c) Mounted inside the EP203 panel.
- d) Instruction document no. DFU0000212.

**Remote Status Unit (RSU) - Part No. EP210S/EP210F**
- a) Up to eight RSUs can be connected.
- b) Provides remote indication of system status.
- f) 128 x 64 pixel graphic LCD unit with two-colour backlight.
- g) Three monitored inputs (Abort, Hold and Mode).
- h) 2-wire RS485 + 2-wire power (24V).
- i) Instruction document no. DFU0000210.

**Economy Status Unit (ESU) - Part No. EP211**
- a) Up to eight ESUs can be connected.
- b) Provides remote indication of extinguishant “release imminent”.
- c) Single-gang mounting arrangement.
- e) 2-wire power (24V) + 2-wire mode select
- f) 6K8 EOL resistor fitted in last EP215 allows wiring to be monitored for open and short-circuit faults.
- g) Instruction document no. DFU0000211.

**System Hold Off / Abort Button - Part No. EP215**
- a) Monitored input to the EP203 panel.
- b) Used to either delay, or cancel the extinguishant release sequence (dependent on connection to EP203 panel).
- c) Connects to EP203 panel via 2-wire connection. The remaining EP215 units are then daisy-chained.
- d) Single-gang, surface-mounted unit.
- e) 6K8 EOL resistor fitted in last EP215 allows wiring to be monitored for open and short-circuit faults.
- f) Instruction document no. DFU0215000.
INSTALLATION AND WIRING

The EP203 Panel Enclosure

The EP203 panel enclosure comprises of a plastic detachable lid and metal base unit containing:

- Main Control PCB - provides all the connections for the system's detector circuits, sounder circuits, monitored inputs and auxiliary outputs. It also provides the engineer with access to a wide range of commissioning and engineering menus
- Power Supply PCB - provides connections to the mains supply. It is switch mode type, rated @230Vac, 50/60Hz that combines the functions of a power supply unit, battery charging unit and battery monitoring unit
- Output Expansion Relay Board (optional) - provides up to five volt-free relay outputs.

The Main Control PCB is mounted on a metal bridge and the Power Supply PCB and optional Output Expansion Relay Board are mounted in the metal base unit underneath the Main Control PCB.

Removing the Lid and Base PCBs

To protect the electronics from damage and to expose the base mounting holes, the panel’s lid and PCBs should be removed prior to first fix installation. See steps below.

Anti-static handling guidelines

Ensure that the following electro-static handling precautions are taken immediately prior to handling the panel’s PCBs, or any other static-sensitive components. Before handling any static-sensitive items, operators should rid themselves of any personal electro-static charge by momentarily touching any sound connection to safety earth, e.g. a radiator. Always handle PCBs by their sides and avoid touching the legs of any components.

1. Take the panel out of its packing box and undo the two lid screws using the Allen key supplied in the accessory pack.
2. Open the plastic lid, pull out the lid’s two fixing pins and take off the lid.
3. Slacken the four M4 retaining nuts on the metal bridge and slide the bridge (and mounted Main Control PCB) up and over the mounting pillars, taking care not to damage any of the components.
4. Disconnect the telecoms-style connecting cables from PL3 on the Power Supply PCB, and from PL1 on the Output Expansion Relay Board (if fitted). Make sure that these cables remain connected to the Main Control PCB to prevent them being misplaced. **Note**: Care should be taken when detaching this connector to depress the locking tab to prevent damage.
5. Pull the Power Supply PCB’s earth strap (green/yellow) off the spade connector at the main chassis earth point on the base unit.
6. Carefully remove the two retaining screws on the Power Supply PCB and slide the PCB up and over its mounting pillars, taking care not to damage any of the components.

7. If an Output Expansion Relay Board is fitted, carefully remove the two retaining screws on the board and slide the board up and over its mounting pillars, taking care not to damage any of the components.

8. Store the PCBs in a clean, dry place that is free from vibration, dust, and excessive heat. Storing the PCBs in a suitable cardboard box will also guard them against mechanical damage.
FIRST FIX

Cable Types and Limitations


All system wiring should be installed in accordance with the current edition of the IEE Wiring Regs, (BS7671), or other national standards of installation should be used where applicable.

To comply with EMC (Electro Magnetic Compatibility) regulations and to reduce the risk of electrical interference in the system wiring, we recommend the use of fire-resistant screened cables throughout the installation.

Planning the Cable Entry and Distribution within the EP203 Panel

Note: The detector and alarm sounder circuit cabling is classed as low voltage and must be segregated away from mains voltages. Careful planning is needed to ensure this. See Figure 2 below for guidance.

We recommend that field wiring tails of at least 20-30cm are left inside the EP203 panel enclosure to ensure adequate connection to the EP203 panel terminals.

All cables should be fed into the EP203 panel via the knockouts provided on the top of the base unit. Knockouts should be removed with a sharp, light tap using a flat 6mm broadsided screwdriver, as shown in diagram (right).

Always ensure that if a knockout is removed, the hole is filled with a good quality 20mm cable gland. Any unused knockouts must be securely blanked off.

Figure 2 : Location of Enclosure Mounting Holes and Knockouts
Siting and Mounting the EP203 Panel

The EP203 panel enclosure can be surface, or semi-flush mounted. It must be sited indoors on a dry, flat surface in an area not subject to conditions likely to affect its performance, e.g. damp, salt-air, water ingress, extremes of temperature, physical abuse, etc. It should be sited at a height where it is easily accessible and in a prominent position within the building. Ideally, the LED indicators and LCD unit on the front of the enclosure should be at eye level.

To expose the EP203 panel’s mounting holes, the lid and base PCBs have to be removed (see Page 9). Using the five mounting holes provided, fix the base securely onto the wall. The mounting holes are suitable for use with No.8-10, or 4-5mm countersunk screws. Assess the condition and construction of the wall and use suitable screw fixings.

Note: The central mounting hole can be used to temporarily hang the base unit so it can be leveled and its remaining fixing points marked for drilling.

Any dust, or swarf created during the fixing process must be kept out of the enclosure.

Mains Wiring

The requirement for the mains supply to the EP203 panel is fixed wiring, using 3-core cable (no less than 1mm² and no greater than 2.5mm²), or a suitable three-conductor system, fed from an isolating switched spur, fused at 3A. This should be secure from unauthorised operation and be marked ‘FIRE ALARM: DO NOT SWITCH OFF’. The mains supply must be exclusive to the EP203 panel.

(As an alternative to a switched fused spur, a double-pole isolating device may be used providing it meets the appropriate national wiring regulations. See Figure 3 below.

Note: The mains supply wiring MUST be segregated away from the detector and alarm sounder circuit cabling that is classed as low voltage.

Figure 3 : Mains Wiring
Detector Circuit Wiring

**Note:** See Appendix 4 (Technical Specification) for the detector circuit specification. The EP203 panel can power three conventional detector circuits at 21-28Vdc. Each detector circuit must be wired as a single, radial circuit with no spurs. **Detector bases with integral continuity diodes MUST NOT be used and manual call points MUST NOT be connected to the detector circuits.**

**Note:** The total number of detectors affects the system standby time and should be taken into account when selecting the standby battery. See Appendix 1 for standby battery calculation.

![Detector Circuit Wiring Diagram](image)

Figure 4: Typical Detector Circuit Wiring

A 6k8 end-of-line resistor (supplied in the accessory pack) must be connected across the terminals of the last device on each circuit to allow the wiring to be line monitored for open and short circuit faults.

**Note:** Unused circuits must have a 6k8 resistor fitted at the EP203 panel terminals. The wiring for each detector circuit should be connected to the relevant 5mm connector block on the Main Control PCB (Zone 1, Zone 2, or Zone 3) and their screens terminated at the EP203 panel’s base earth post. For more specific device wiring information, refer to the manufacturers’ own instructions.

Sounder Circuit Wiring

**Note:** See Appendix 4 (Technical Specification) for the sounder circuit specification. The EP203 panel can power three conventional polarised sounder circuits at 19-28Vdc. Each sounder circuit must be wired as a single, radial circuit with no spurs.

![Sounder Circuit Wiring Diagram](image)

Figure 5: Typical Sounder Circuit Wiring
A 6k8 end-of-line resistor (supplied in the accessory pack) must be connected across the terminals of the last device on each circuit to allow the wiring to be line monitored for open and short circuit faults.

Note: Unused circuits must have a 6k8 resistor fitted at the EP203 panel terminals.
The wiring for each alarm sounder circuit should be connected to the relevant 5mm connector block on the Main Control PCB (Sound 1A, Sound 1B, Sound 2nd Stage) and their screens terminated at the EP203 panel's base earth post. For more specific device wiring information, refer to the manufacturers' own instructions.

Monitored Input Wiring

Note: See Appendix 4 (Technical Specification) for the monitored input specification.
Six monitored input connections are available at the EP203 panel:
Manual Release, Flow Switch, Low Pressure, Mode, Hold and Abort.

![Typical Monitored Input Wiring](image)

Figure 6 : Typical Monitored Input Wiring

A 6k8 end-of-line resistor (supplied in the accessory pack) must be connected across the terminals of each device on each circuit to allow the wiring to be line monitored for open and short circuit faults.

Note: Unused circuits must have a 6k8 resistor fitted at the EP203 panel terminals.
The wiring for each input should be connected to the relevant 5mm connector block on the Main Control PCB and their screens terminated at the EP203 panel's base earth post.

Auxiliary Output Wiring

Note: See Appendix 4 (Technical Specification) for the auxiliary output circuit specification.
The wiring for each output should be connected to the relevant 5mm connector block on the Main Control PCB and their screens terminated at the EP203 panel's base earth post.
Six auxiliary relays provide volt-free changeover contacts, as detailed below:

- **Fire**: Relay operates on activation of a fire condition in a zone, or by pressing the Silence/Resound Sounder pushbutton. Relay will not operate on activation of a remote control AL input. The relay remains activated until the panel is reset.

- **Local Fire**: Relay operates on activation of a fire condition in a zone, or by pressing Silence/Resound Sounder pushbutton.
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- **1st Stage Alarm**: Relay operates on activation of a zone that is part of the extinguisher release circuitry, or when the panel mounted (or remote manual) release pushbutton is pressed. The relay remains activated until the panel is reset.

- **2nd Stage Alarm**: Relay operates when the EP203 panel has entered the activated condition, i.e. the extinguisher release timer has started. The relay remains activated until the panel is reset.

- **Fault**: This relay output is normally energised. When a fault occurs, the output turns off to ensure failsafe operation even in the event of total power loss.

- **Extract**: Relay operates when an Access Level 2 user selects Start Extract Fan after the flooding time has elapsed (without a reset). This allows a flooded area to be vented of extinguishant.

  **Note**: The Extract Option is enabled/disabled in the Commissioning menu at Access Level 3.

**Remote Control Wiring**

If required, some functions of the EP203 can be remotely controlled. The operating inputs of the remote equipment is restricted to an Access Level 2 user. The wiring for each input should be connected to the relevant 5mm connector block on the Main Control PCB and their screens terminated at the EP203 panel’s base earth post.

The remote input abbreviated functions at the Main Control PCB are listed below:

- **+/−**: Remote supply
- **SIL**: Silence Alarm
- **AL**: Sound Alarm
- **FLT**: Fault – Generates a general fault and operates the fault relay.
- **RST**: Reset – Resets the system to normal mode.

![Figure 7: Typical Remote Control Input Wiring](image)

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**Extinguisher Output Wiring**

**Note**: See Appendix 4 (Technical Specification) for the extinguisher output circuit specification.

The wiring for each output should be connected to the relevant 5mm connector block on the Main Control PCB and their screens terminated at the EP203 panel’s base earth post. The EP203 panel’s extinguishant outputs supports up to two solenoids, or multiple ‘Metrons™’ (typically up to four).

**Solenoid Wiring**

The extinguishant output is capable of supplying up to 1 amp for the maximum duration (5 mins.) to a solenoid. To ensure that the current rating of the extinguishant output is not exceeded:

- If one solenoid is used it must have a resistance greater than 30 ohms
- If two solenoids are used each solenoid must have a resistance greater than 60 ohms.

**Note**: The number of EP214 System Line Terminators is programmed by an Access Level 3 user in the Commissioning menu (Ext. O/P EOLs sub-menu).

**Wiring for one solenoid:**

**Wiring for two solenoids:**

![Diagram](image)

Figure 8: Typical Solenoid Circuit Wiring
**Igniting Actuator (Metron™) Wiring**

The extinguishant output is capable of supplying up to 3 amps for the maximum duration (50 milliseconds) to an igniting actuator.

The total series resistance of the actuator(s) and wiring should NOT exceed 7 ohms.

**Wiring for one actuator:**

**Wiring for multiple actuators:**

![Typical Igniting Actuator Circuit Wiring Diagram](image)

Figure 9: Typical Igniting Actuator Circuit Wiring
Connection to RSUs and ESUs

RSUs require a 4-wire connection (2-wire power, 2-wire RS485) from the EP203 panel that connects to each unit and is daisy chained onto the next (see Figure 10 below). The RSU abbreviated functions at the Main Control PCB are listed below:

- +/-: 2-wire power supply (24V); A/B: 2-wire RS485 data connection

![Figure 10: Typical RSU Circuit Wiring](image)

Each RSU has a pcb-mounted DIL switch and must be allocated a unique address between 1 and 8. See right for DIL switch settings (●=DIL switch ON/UP).

Each RSU has a pcb-mounted Display Contrast (VR1) that can be adjusted to suit the contrast of the units’ LCD display.

ESUs require a 2-wire 24V power connection and 2-wire mode select from the EP203 panel that connects to each unit and is daisy chained onto the next (see figure 11 below).

A 6k8 end-of-line resistor (supplied in the accessory pack) must be connected across the terminals of the last ECU on each circuit to allow the wiring to be line monitored for open and short circuit faults.

**Note:** Unused circuits must have a 6k8 resistor fitted at the EP203 panel terminals.

![Figure 11: Typical ESU Circuit Wiring](image)
SECOND FIX

Connecting the EP203 Panel

CAUTION: DO NOT use a high voltage insulation tester with any electronic devices connected.

Check all devices on the detector and sounder circuits are correctly connected and that cable integrity is verified throughout the installation. Faults occurring in the wiring, which are not identified at this stage, will almost certainly result in spurious and intermittent faults when the equipment is energised.

Installing the Power Supply PCB and Output Expansion Relay Board

WARNING: WHEN CONNECTED, THE POWER SUPPLY PCB STORES VOLTAGES UP TO 400Vdc AND MAY BE LETHAL IF TOUCHED. DO NOT TOUCH THE PCB WHilst THE (HAZARDOUS VOLTAGES PRESENT) RED LED IS LIT ON THE PCB.

The component layout of the Power Supply PCB is shown in Figure 12.

1. Slide the Power Supply PCB over and downwards securing onto its mounting pillars, taking care not to damage any of the components.
2. Fix the two retaining screws on the Power Supply PCB. Do not overtighten the screws otherwise their threads will strip.
3. Attach the Power Supply PCB’s earth strap (Green/Yellow) to the spade connector at the main chassis earth point on the base unit.
4. If an Output Expansion Relay Board is fitted, carefully slide the board over and downward securing onto its mounting pillars, taking care not to damage any of the components.
5. Fix the two retaining screws on the Output Expansion Relay Board. Do not overtighten the screws otherwise their threads will strip.

Connecting the Mains Supply

The general requirement for the mains supply to this equipment is described on Page 12.

WARNING: DO NOT ATTEMPT TO CONNECT THE MAINS SUPPLY TO THE POWER SUPPLY PCB UNTIL THE INSTALLATION IS COMPLETE AND ALL PCBs ARE SECURELY INSTALLED IN THE EP203 PANEL.

The incoming mains cable should enter the EP203 panel through the knockouts at the top right hand side of the enclosure and terminated at the connector block (CONN1) on the Power Supply PCB. Make sure the mains earth wire is connected directly to this connector block and NOT to the secondary base earth post (which is provided for connecting detector and sounder circuit screens).

The Power Supply PCB’s earth strap MUST be connected to the spade on the chassis earth post before operation.
Connecting the Standby Batteries

**CAUTION:** Always dispose of used batteries in accordance with the battery manufacturers’ instructions. There is a risk of explosion if batteries are replaced by an incorrect type.

Two, new high quality and fully charged 12Vdc, 7Ahr valve regulated lead-acid (VRLA) type batteries are required as the emergency standby power supply for the EP203 panel. The capacity of the batteries may be lesser-rated dependant upon the required standby time. To calculate the batteries required for any given standby period, refer to the calculation guide in Appendix 1.

The batteries should be connected in series and located in the EP203 panel’s enclosure as shown in Figure 13, below.

**Note:** The battery connection leads (red lead, black lead and green link wire) are supplied in the accessory pack.

The EP203 panel’s sophisticated battery monitoring unit protects the batteries against deep discharge by activating a cut off circuit when the standby supply voltage reaches approx. 21Vdc. If batteries are not fitted, are discharged, or in poor condition, a PSU fault will be displayed at the EP203 panel.

**Figure 13 : Battery Location and Connection Details**
Installing the Main Control PCB

The connections to the panel's Main Control PCB are shown in Appendix 2.

**Note:** Before any connections are made, the Main Control PCB and Output Expansion Relay Board (if fitted) must first be securely mounted inside the base unit.

1. Slide the metal bridge (and mounted Main Control PCB) over and downwards securing onto its mounting pillars.
2. Secure the metal bridge in the base unit using the four M4 retaining nuts, taking care not to damage any of the components. Do not overtighten the nuts otherwise their threads will strip.
3. Connect the Main Control PCB’s telecoms-style connecting cables to PL3 on the Power Supply PCB and to PL1 on the Output Expansion Relay Board (if fitted).
   **Note:** Care should be taken when attaching this connector to depress the locking tab to prevent damage.

Connecting Circuits to the Main Control PCB

Incoming detector and sounder circuits, monitored inputs, auxiliary outputs, extinguisher circuits, RSUs and ESUs are be connected to the relevant connector block on the Main Control PCB as shown in Appendix 2. For typical circuit wiring diagrams refer to the First Fix section of this manual. See note below regarding earthing of screens.

**Important notes regarding the earthing of screens**

All screens should be adequately insulated and connected between the nut and washers on the base earth post (see right) using suitable eyed crimp connectors.

Do not disturb the lower nut, this must be secure to ensure earth continuity. The base earth post is provided for terminating earth screens, or drains and not as the main earthing point. The system designer, or installer must review the external earth bonding (if required) with respect to the national wiring rules. That is, if the type of installation requires protective earth bonding, then this must be applied externally and in conjunction with the type of earthing system employed on that particular site.
PROGRAMMING THE EP203 PANEL

Three levels of control are available on the EP203 panel: General User (Access Level 1), Authorised User (Access Level 2) and Engineer (Access Level 3) as detailed below:

**Note:** For detailed information on how to use the general and authorised user controls, refer to the EP203 panel User Manual/Log Book (Approved Document No. DFU0002031).

**General User Controls (Access Level 1)**

The functions that can be performed in Access Level 1 are:

- Manually activate the extinguisher release
- Mute the internal sounder.

Also, by pressing the ‘menu’ button, the LCD unit displays the following Access Level 1 menu:

<table>
<thead>
<tr>
<th>Display Faults</th>
<th>Display Dis/mnt</th>
<th>Zones in Test</th>
<th>Lamp Test</th>
<th>Alarm Counter</th>
</tr>
</thead>
</table>

**Authorised User Controls (Access Level 2)**

The functions that can be performed in Access Level 2, by turning the panel-mounted keyswitch to the ‘accessed’ position, are:

- Manually activate the extinguisher release
- Mute the internal sounder
- Silence the alarm sounders
- Resound the alarm sounders
- Reset an alarm condition.

Also, the LCD unit displays the following Access Level 2 menu:

<table>
<thead>
<tr>
<th>Display Faults</th>
<th>Display Dis/mnt</th>
<th>Zones in Test</th>
<th>Lamp Test</th>
<th>Alarm Counter</th>
<th>Set Time/Date</th>
<th>Event Log</th>
<th>Disp Contrast</th>
<th>Disablements</th>
</tr>
</thead>
</table>


Engineer Controls (Access Level 3)

To avoid unauthorised changes to critical parts of the control system, certain EP203 panel functions are only available to engineers and competent service personnel. The functions that can be performed in Access Level 3, by pressing the Access level 3 switch (mounted on the Main Control PCB) are:

- Manually activate the extinguisher release
- Silence the internal sounder
- Silence the alarm sounders
- Resound the alarm sounders
- Reset an alarm condition.

Also, the LCD unit displays the following Access Level 3 menu:

- Display Faults
- Display Dis/mnt
- Zones in Test
- Display RSUs
- Disablements
- Commissioning
- Engineering

Accessing and using the Engineer Controls

To gain access to the engineer’s menu and sub-menus:

1. Open the EP203 panel front lid using the Allen key supplied in the accessory pack.
2. Press the Access level 3 switch located at the top right corner on the Main Control PCB. The Accessed yellow LED will be lit steady and the Access Level 3 menu is displayed on the LCD unit.
3. Press the Scroll (up) ▲ and Scroll (down) ▼ buttons to highlight a menu.
4. Press the Accept ▶ button to select a menu and a sub-menu is displayed.
5. Press the Accept ▶ button to select a sub-menu.
6. If applicable, press the Scroll (up) ▲ and Scroll (down) ▼ buttons to scroll the display through all active conditions (faults, disablements, tests, etc.).
7. Press the Escape ◀ button to return to the previous Access Level 3 menu.
8. To escape Access Level 3 press the Access level 3 switch.

Note: Access Level 3 will automatically be exited after 1 hour of no activity.
## ACCESS LEVEL 3 MENUS

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**Note:** A Stop Flooding ‘floating’ menu is also displayed for a level 3 user when an extinguishing release is in progress. Selecting this menu terminates the release of extinguishing.
Display Faults

This menu displays all faults on the system and is available at both Access Levels 2 and 3:

1. In Access Level 3, select the Display Faults menu. The panel displays all active faults on the system. (e.g. Zone 1 O/C Fault, Zone 2 S/C Fault, etc.)
2. Scroll the display through all active faults using the Scroll (up) and Scroll (down) buttons.
3. Press the Escape button to return to the Access Level 3 menu.

Display Dis/mnt

The Display Disablesments menu displays all active disablements on the system and is available at both Access Levels 2 and 3. Disablements are set in the Disablements menu (see Page 26).

1. In Access Level 3, select the Display Dis/mnt menu. The panel displays all active disablements on the system (e.g. Zone 1 disabled, etc.).
2. Scroll the display through all active disablements using the Scroll (up) and Scroll (down) buttons.
3. Press the Escape button to return to the Access Level 3 menu.

Zones in Test

This menu displays all detection zones that are currently in test mode on the system and is available at both Access Levels 2 and 3. Zones are put in test mode in the Engineering menu (see Page 32).

1. In Access Level 3, select the Zones in Test menu. The panel displays all zones currently in test on the system (e.g. Zone 1 is on Test, etc.).
2. Scroll the display through all active zones in test using the Scroll (up) and Scroll (down) buttons.
3. Press the Escape button to return to the Access Level 3 menu.

Display RSUs

This menu displays all active Remote Status Units on the system.

1. In Access Level 3, select the Display RSUs menu. The panel automatically displays all RSUs and their IDs.
2. Press the Escape button to return to the Access Level 3 menu.
Disablesments

The Disablesments menu allows the temporary disabling, or enabling of the extinguishant system, detection zones, sounders, monitored inputs, relays and RSUs. The Disablesments menu is available at both Access Levels 2 and 3. Any active disablesments are displayed at the EP203 panel by the General Disablement and relevant disablement yellow LEDs lit steady.

**Note:** It is recommended all disablesments are immediately enabled when no longer required as they can have a major effect on how the system works.

**Disable Exting**

This sub-menu allows the disabling/enabling of the extinguishant system.

1. From the Disablesments menu, select the Disable Exting sub-menu.
2. Press the Accept button to disable/enable the extinguishant system.
3. Press the Escape button to return to the Disablesments menu.

**Note:** ‘Exting System Disabled’ will also be displayed at any RSUs connected on the system.

**Disable Zone**

This sub-menu allows the disabling/enabling of one, or more of the panel's three detection zones. Disabled zones do not report fire, or fault conditions.

1. From the Disablesments menu, select the Disable Zone sub-menu.
2. Select the detection zone(s) to be disabled/enabled using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to disable/enable a selected zone.
4. Press the Escape button to return to the Disablesments menu.

**Disable Sounder**

This sub-menu allows the disabling/enabling of the fire sounders from sounding in a fire condition.

1. From the Disablesments menu, select Disable Sounder.
2. Press the Accept button to disable/enable the sounder circuit.
3. Press the Escape button to return to the Disablesments menu.

**Disable SnrDel**

The sounder delay sub-menu allows the disabling/enabling of a fire sounder delay in a fire condition.

1. From the Disablesments menu, select Disable SnrDel.
2. Press the Accept button to disable/enable the delay on the sounder circuit.
3. Press the Escape button to return to the Disablesments menu.
**Disable Input**

This sub-menu allows the disabling/enabling of one, or more of the panel's six monitored inputs: Manual Release, Flow Switch, Low Pressure, Mode, Hold and Abort.

1. From the Disablements menu, select Disable Input.
2. Select the input(s) to be disabled/enabled using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to disable/enable the selected input.
4. Press the Escape button to return to the Disablements menu.

**Disable Relay**

This sub-menu allows the disabling/enabling of one, or more of the panel's six auxiliary relay outputs: Fire, Local Fire, Extract, 1st Stage, 2nd Stage and Fault.

**Note:** If an Output Expansion Relay Board is fitted, this sub-menu also allows the disabling/enabling of one, or more of the board's five relay outputs: Reset, Mode, Discharged, Hold and Abort.

1. From the Disablements menu, select Disable Relay.
2. Select the relay output(s) to be disabled/enabled using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to disable/enable the selected relay output.
4. Press the Escape button to return to the Disablements menu.

**Disable RSU**

This sub-menu allows the disabling/enabling of one, or more of the panel's Remote Status Units.

1. From the Disablements menu, select Disable RSU.
2. Select the RSU(s) to be disabled/enabled using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button. The panel requests confirmation.
4. Scroll (down) to confirm the change.
5. Press the Accept button to disable/enable the selected RSU. The Disablements menu is displayed.

**Note:** ‘RSU Disabled’ will be displayed at the RSU that has been disabled.
Commissioning

Zone Selection
This sub-menu programs the zone combination that starts the extinguishant release sequence.
1. From the Commissioning menu, select Zone Selection.
2. Highlight the required zone selection using the Scroll (up) and Scroll (down) buttons. The options are listed below:
   - NONE
   - Z1 OR Z2, Z2 OR Z3, Z1 OR Z3, Z1 OR Z2 OR Z3
   - (Z1 & Z2) OR (Z1 & Z3), (Z1 & Z3) OR (Z2 & Z3), (Z2 & Z1) OR (Z2 & Z3)
   - (Z1 & Z2) OR Z3, (Z1 & Z3) OR Z2, (Z2 & Z3) OR Z1
   - ANY PAIR.
3. Press the Accept button to confirm the zone selection. The Commissioning menu is displayed.

Ext. Delay
The extinguishant delay sub-menu sets the countdown duration before the extinguishant is released.
1. From the Commissioning menu, select Ext. Delay.
2. Select the required duration using the Scroll (up) and Scroll (down) buttons. This is adjustable between 0-60 seconds (in 1 second steps).
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Ext. Duration
The extinguishant duration sub-menu sets the duration of the firing signal to the extinguishant output, typically 2 secs.
Note: Keep the extinguishant duration to a minimum in order to minimize current consumption.
1. From the Commissioning menu, select Ext. Duration.
2. Select the required duration using the Scroll (up) and Scroll (down) buttons. This is adjustable between 1-300 seconds (in 1 second steps).
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Flooding Time
This sub-menu sets the flooding time.
1. From the Commissioning menu, select Flooding Time.
2. Select the required duration using the Scroll (up) and Scroll (down) buttons. This is adjustable between 60-1740 seconds (in 1 second steps).
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.
Extract Option
This sub-menu selects whether the ventilation extract fan is fitted, or not.
1. From the Commissioning menu, select Extract Option.
2. Select either the extract fitted, or not fitted option using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Extract Time
This sub-menu sets the duration for operation of the ventilation extract fan, which vents a flooded area of extinguishant.
Note: The Extract Option has to be enabled (see above).
1. From the Commissioning menu, select Extract Time.
2. Select the required duration using the Scroll (up) and Scroll (down) buttons. This is adjustable between 1-900 seconds (in 1 second steps).
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Flow Option
This sub-menu selects whether a flow switch is fitted, or not.
1. From the Commissioning menu, select Flow Option.
2. Select either the flow switch fitted, or not fitted option using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Sounder Delay
When an alarm occurs it is processed as normal, however, the activation of the fire sounders can be postponed until a specified delay period has expired, thus allowing the cause of the alarm to be investigated by the user.
1. From the Commissioning menu, select Sounder Delay.
2. Select the required delay period using the Scroll (up) and Scroll (down) buttons. This is adjustable between 0-600 seconds (in 1 second steps).
3. Press the Accept key to confirm the changes. The Commissioning menu is displayed.

RSU Learn
This sub-menu initiates an RSU learn operation by the panel and also updates the panel’s database.
1. From the Commissioning menu, select RSU Learn. The panel automatically performs an RSU learn operation and finds all RSUs on the system.
2. Press the Escape key to return to the Commissioning menu.
Ext. O/P EOLs
The extinguishant output end-of-line sub-menu sets the number of extinguisher System Line Terminators to either 1 or 2.
1. From the Commissioning menu, select Ext. O/P EOLs.
2. Select the required number of terminations using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept key to confirm the changes. The Commissioning menu is displayed.

Mode Exceptions
This sub-menu sets the default setting of mode when the mode input is in fault and/or disabled.
1. From the Commissioning menu, select Mode Exceptions.
2. Select either default Mode on Fault, or default Mode on Disable using the Scroll (up) and Scroll (down) buttons.
3. Select either Manual Only, or Auto/Manual Mode using the Scroll (up) and Scroll (down) buttons.
4. Press the Accept key to confirm the mode changes.
5. Press the Escape key. The Commissioning menu is displayed.

Earth Fault
This sub-menu enables/disables the earth fault circuitry.
1. From the Commissioning menu, select Earth Fault.
2. Select either the enabled, or disabled option using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Man Rel Mode
The manual release mode sub-menu selects either delayed, or immediate release of extinguishant.
1. From the Commissioning menu, select Man Rel Mode.
2. Select either the delayed, or immediate option using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Zone Trigger
This sub-menu enables a short-circuit condition on the three detection zones.
1. From the Commissioning menu, select Zone Trigger.
2. Select the detection zone using the Scroll (up) and Scroll (down) buttons and press the Accept button.
3. Select either the S/C, or Normal option using the Scroll (up) and Scroll (down) buttons.
4. Press the Accept button to confirm the changes. The Commissioning menu is displayed.
Resound Fire
This sub-menu enables/disables a resound of the alarm sounders.
1. From the Commissioning menu, select Resound Fire.
2. Select either the enabled, or disabled option using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to confirm the changes. The Commissioning menu is displayed.

Clean Start
This sub-menu clears the panel's memory back to its factory default settings.
1. From the Commissioning menu, select Clean Start. The panel requests the confirmation code.
2. Press the Scroll (up), Accept, Scroll (down) and Escape buttons.
3. Press the Accept button to confirm the clean start. The Commissioning menu is displayed.
Engineering

Walk Test
To assist routine maintenance checks, a non-latching “one man walk test” facility is available. When a detector is triggered on any zone(s) in test, the alarm sounders operate for approximately one second on and eight seconds off. This cycle continues until the cause of the alarm is removed (by the test smoke clearing from the detector), at which point the detector circuit also automatically resets. As the engineer walks around the site, additional devices on the zone(s) in test can be checked with the momentary activation of the alarm sounders confirming correct operation.

Should an alarm occur on a zone that is NOT programmed for test, the alarm will be processed in the normal way. All zones that are in test will have their test temporarily suspended until the alarm(s) from the other zones are reset. At this point zone testing may resume, i.e. the alarm will operate correctly despite being in test mode.

This sub-menu allows a walk test of one, or more of the panel’s three detection zones.

1. From the Engineering menu, select Walk Test.
2. Select the required walk test zone (1, 2, 3, or All) using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button.
4. Use the Scroll (down) button to change from Normal Operation to Walk Test Mode and press the Accept button.
5. Repeat steps 2 to 4 to select additional zones for walk test.
6. Press the Escape button to return to the Engineering menu.

Note: Take the relevant zones out of test when testing is complete.

Test Relays
This sub-menu allows the testing of one, or more of the panel’s six auxiliary relay outputs: Fire, Local Fire, Extract, 1st Stage, 2nd Stage and Fault. The relay outputs’ state can be set to On, Off, or Intermittent.

Note: If an Output Expansion Relay Board is fitted, this sub-menu also allows the testing of one, or more of the board’s five relay outputs: Reset, Mode, Discharged, Hold and Abort.

1. From the Engineering menu, select Test Relays.
2. Select the relay output(s) to be tested using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to set the selected relay output On.
4. Or, press the Accept button to set the selected relay output to Intermittent.
5. Or, press the Accept button to set the selected relay output Off.
6. Press the Escape button to return to the Engineering menu.
Test Sounders
This sub-menu allows the testing of 1st and 2nd Stage sounder circuits by altering its state between On, Off, or Intermittent.
1. From the Engineering menu, select Test Sounders.
2. Select the sounder circuit to be tested using the Scroll (up) and Scroll (down) buttons.
3. Press the Accept button to change the selected sounder circuit On.
4. Or, press the Accept button to change the selected sounder circuit to Intermittent.
5. Or, press the Accept button to change the selected sounder circuit Off.
6. Press the Escape button to return to the Engineering menu.

Monitoring
This sub-menu allows a constant monitoring voltage to be temporarily applied to the sounder circuit, monitored inputs and extinguishing output.
1. From the Engineering menu, select Monitoring. The LCD unit displays pulsing mode for the above circuits.
   Note: Pulsing mode reduces the quiescent current of the panel but may make troubleshooting difficult.
2. Press the Accept button and the LCD unit displays constant mode for the same circuits.
3. Perform the necessary voltage checks.
4. On completion of voltage checks, press the Escape button and the panel will automatically revert back to pulsing mode.

Show PSU Stats
This sub-menu can assist in fault diagnosing the panel’s PSU and standby battery supply.
1. From the Engineering menu, select the Show PSU Stats sub-menu. The LCD unit displays the PSU and battery statistics (typical readings shown below):

```
System = 27200mV
Earth = OK (or FAIL)
PSU Comms = OK (or FAIL)
Mains = OK (or FAIL)
Batt = OK (or LOW, CRITICAL or FAULT)
Charger = OK (or FAIL)
Temp = 39°C
Battery = 26530mV
Resistance = 160mΩ
```
2. Press the Escape button to return to the Engineering menu.

Note: A PSU fault occurs when the battery resistance is >500mΩ.
Version Numbers
This sub-menu displays the current version number of the panel’s firmware and checksum data.

1. From the Engineering menu, select the Version Numbers sub-menu. The LCD unit displays the release date and version of the panel’s firmware (typical display shown below):

```
Version Numbers
ERP 2A07
14/04/2008
```

2. Press the Accept button and the LCD unit displays the program checksum code, site data and update count (typical display shown below):

```
Checksums
Program = BC43
Site = 0D19
Site Update Count = 23
```

3. Press the Escape button to return to the Engineering menu.
FAULT DIAGNOSIS

Overview

When a fault occurs on the system, the EP203 panel responds by activating its internal sounder, the General Fault yellow LED flashes, any other specific yellow Fault LEDs flash and the LCD unit displays the specific fault.

The EP203 panel's fault output will also activate (provided it has NOT been disabled).

Fixing any particular fault condition will automatically clear the fault from the EP203 panel. If the EP203 panel is reset whilst faults still exist, the faults will reappear after a short duration.

**Note**: It is possible to mute the EP203 panel's internal sounder at any time by momentarily pressing the Silence Internal Sounder pushbutton.

Detection Zone Faults

The three detection zone circuits are monitored for open and short-circuit faults (unless there is an alarm condition, or the zone is in test, or disabled). The following lists typical fault diagnosis for zone faults:

**Open-circuit, or short-circuit fault has occurred on a detection zone**

An open, or short-circuit fault on a detection zone is indicated by the following:

- Internal panel sounder activates
- General Fault yellow LED flashes
- Specific Zone Fault yellow LED flashes
- LCD unit displays the specific fault (e.g. Zone 1 O/C fault, Zone 2 S/C fault).

**Suggested action:**

1. Disconnect the faulty detection zone completely from the Main Control PCB and refit a 6k8 ohm end-of-line resistor at the panel terminals. If the fault condition clears this confirms there is a wiring fault.
2. Double-check and refit the circuit wiring and the end-of-line resistor. Trace the fault with consideration to the type of fault indicated at the panel and on the LCD unit.

**Note**: A common short circuit fault is a detector head badly seated in a base that is not making a true connection.
Sounder Faults

All three alarm sounder circuits are monitored for open and short circuit faults (unless disabled, or in an alarm condition).

An open, or short-circuit fault on a sounder circuit is indicated by the following:

- Internal panel sounder activates
- General Fault yellow LED flashes
- Sounder Fault yellow LED flashes
- LCD unit displays the specific fault (e.g. Sounder circuit 1 O/C fault, Sounder circuit 2 S/C fault).

To determine which of the panel’s three sounder circuits is faulty

1. Disconnect each sounder circuit from the Main Control PCB in turn and measure the resistance between the two wires. A healthy circuit will display only the end-of-line resistor value. Any other resistance value signifies a fault.
2. If the readings from all sounder circuits are correct, take their end-of-line resistors and connect them to the sounder circuits at the panel terminals. If the fault persists, the Main Control PCB is faulty and must be replaced.
3. If a sounder circuit fault is detected, correct the fault and reconnect the sounder circuit. The sounder fault will automatically clear within 60 seconds.

Note: If the sounder circuit is shorted and the alarm voltage applied, the relevant sounder fuse will trip. When the fault is removed, the fuse will automatically reset.

Power Supply Faults

Note: The power supply status can be viewed at Access Level 3, selecting the Engineering menu, then selecting Show PSU Stats.

When a power supply fault occurs the LCD unit displays the specific fault and the Power Supply Fault yellow LED flashes. A power supply fault arises when one, or more of the following conditions have occurred:

- The mains supply voltage is too low, or has failed completely
- The mains supply fuse (F1) has ruptured
- The battery fuse (F2) has ruptured
- The battery supply voltage is too low
- The Power Supply PCB is faulty.

The following lists typical fault diagnosis for power supply faults:

The mains supply voltage is too low, or has failed completely

Symptoms: The EP203 panel is running on batteries, but NOT on mains supply. The LCD unit displays ‘Mains=FAIL’ and the Hazardous Voltages Present red LED on the Power Supply PCB is lit steady.
Suggested actions:
1. Isolate the mains supply to the panel and remove the mains connector block (CONN1) from the Power Supply PCB.
2. Position the mains connector block so that the live and neutral connections can be probed. Taking all due precaution, re-apply the mains and measure the voltage.
3. Isolate the mains supply again.
4. If the voltage reading was incorrect, re-check the mains supply.
   If the voltage reading was correct, check if the mains supply fuse (F1) has ruptured. If the F1 fuse is intact and the Hazardous Voltages Present red LED on the Power Supply PCB is lit steady, then the PSU is faulty and should be replaced.

The mains supply fuse (F1) has ruptured

Symptoms: The panel is running on batteries, but NOT on mains supply.
The LCD unit displays ‘Mains=FAIL’ and the Hazardous Voltages Present red LED on the Power Supply PCB is NOT lit.

Suggested actions:
1. Isolate the mains supply to the panel.
2. Remove the Main Control PCB and check the mains supply fuse (F1) on the Power Supply PCB for continuity.
3. If the F1 fuse has ruptured it will be due to an excessive mains surge, or a Power Supply PCB fault. Check the components on the Power Supply PCB for signs of damage. If no damage is found, replace the F1 fuse (supplied in the accessory pack) with the correct type ensuring that the fuse clip is not damaged when re-inserting the fuse.
4. Reconnect the mains supply. If the Hazardous Voltages Present red LED is NOT lit then the Power Supply PCB is faulty and should be replaced.

The battery fuse (F2) has ruptured

Symptoms: The panel is running on mains, but NOT on batteries. The LCD unit displays ‘Batt=FAIL’.

Suggested actions:
1. Isolate the mains supply to the panel and disconnect the batteries.
2. Remove the Main Control PCB and check the battery fuse (F2) on the Power Supply PCB for continuity.
3. If the F2 fuse has ruptured check the components on the Power Supply PCB and Main Control PCB for signs of damage. If no damage is found replace the F2 fuse with the correct type (supplied in the accessory pack), ensuring that the fuse clip is not damaged when re-inserting the fuse.
4. Refit the Main Control PCB and reconnect the batteries.
5. If the Supply Present green LED is lit steady, reconnect the mains supply and check that the power supply fault has cleared. If the Supply Present green LED is NOT lit, either the Power Supply PCB, or the Main Control PCB is faulty and should be replaced.
6. If the F2 fuse is intact, proceed to check the battery voltage (see below).
The battery voltage is too low

**Symptoms:** The panel is running on mains but may, or may not, be running on batteries. The LCD unit displays ‘Batt=FAIL’.

**Suggested actions:**

1. If the mains supply has failed and the battery supply has been discharged to the point where the voltage is critical, i.e. less than 21Vdc, the panel will automatically turn off to avoid damaging the batteries by allowing them to deep discharge. The panel will not restart unless fresh, fully charged batteries are connected, or the mains supply is restored.

2. If the mains supply has not failed, but the total battery voltage is less than 21Vdc, the PSU will not charge the batteries to avoid damage to the charging circuit. If the batteries can be charged, the panel will still show a power supply fault until they have sufficient charge, at which point the power supply fault will automatically be cleared. Depending on battery size and the depth of discharge, this may take several hours. If the batteries are in poor condition they must be replaced.

**NOTE:** The charging circuit is set up during manufacturing, and is temperature compensated. There is no need to adjust the voltage.

3. If the batteries are in good condition and all the other checks have been performed and no faults found, the Power Supply PCB is faulty and should be replaced.

**NOTE:** Batteries that are not connected, or connected in reverse, or with opposite polarities will also cause a power supply fault condition.

The Supply Present green LED is NOT lit

**Symptom 1:** Both the mains supply and the standby batteries have failed. This could be because the mains supply has failed and the batteries have been exhausted.

**Suggested action:**

1. Restore the mains supply and the Supply Present green LED should come back on. However, if the batteries are discharged this will be recognized as a fault by the EP203 panel and indicated as such. See “Battery supply voltage too low” above.

**Symptom 2:** The Power Supply PCB, the Main Control PCB and/or the cable that connects them is faulty.

**Suggested action:**

1. If the mains supply is present (indicated by the Hazardous Voltages Present red LED being lit on the Power Supply PCB), check that the connector cable between the Power Supply PCB and the Main Control PCB is fully inserted at both ends. If the connector cable is fully inserted either the Power Supply PCB and/or the Main Control PCB and/or the connector cable are faulty and should be replaced.
System Faults

System faults are unique in that they do not automatically clear when rectified.

The LCD unit displays ‘System Fault’ and the System Fault yellow LED flashes when one, or more of the following has occurred:

- There is a microprocessor “watchdog” fault
- The microprocessor’s site memory has been corrupted
- The microprocessor’s program memory has been corrupted
- The Main Control PCB is faulty

For a detailed description of what each fault is and suggested corrective action, see below:

Watchdog fault

**Symptoms:** This type of system fault occurs when the panel’s microprocessor has failed to operate correctly, e.g. due to excessive electrical interference, and the panel’s “Watchdog” circuit has been unable to bring it back under control. A common symptom of this is the panel’s controls locking-up.

**Suggested action:**

1. Press the panel’s Reset pushbutton and, if still in Access Level 3, the Escape Access pushbutton. This should clear the fault. If the fault persists, the Main Control PCB is faulty and must be replaced.

Site memory corruption fault

**Symptoms:** This type of system fault occurs when site specific data retained in the panel’s microprocessor is found to be corrupt.

**Suggested actions:**

1. Check all the site-specific data (delays, disablements, etc.) at authorised user and engineering level.
2. If errors are found, reprogram the panel accordingly to clear the corruption.
3. If no errors are found, temporarily change some data e.g. Flooding Time. This should clear the fault. If the fault persists, the memory is damaged and the Main Control PCB must be replaced.

Program memory corruption fault

**Symptoms:** This type of system fault occurs when the microprocessor’s memory is found to be corrupt.

**Suggested actions:**

1. Reset the panel and the fault will clear. Wait for 2 minutes
2. If the fault re-occurs then the memory is damaged and the Main Control PCB must be replaced. If the fault does not re-occur, then there was a momentary disturbance during the microprocessor’s self-checking routine and no further action needs to be taken.
3. If the fault persists, the Main Control PCB is faulty and must be replaced.
GENERAL MAINTENANCE

The EP203 panel does not require any specific maintenance but the following general panel maintenance can be carried out:

1. Check the correct operation of all panel LEDs by selecting the Lamp Test function at the LCD unit (Access Level 1).
2. Check the Event Log (Access Level 2 menu) for intermittent faults.
3. Check that the correct indication is given at the EP203 panel during rotational fire alarm and extinguisher system tests.
   *CAUTION: Testing of the extinguishant system should only be carried out by suitably skilled and technically competent personnel. Tests and must be performed with appropriate isolation measures in place to avoid accidental discharge of the extinguishant.*
4. If any of the panel’s fuses, or PCB components become faulty, these can be removed and re-connected as previously detailed in this manual.
5. The EP203 panel uses VRLA type batteries that normally have a life expectancy of around 5 years. It is recommended that the batteries are tested in accordance with the battery manufacturers’ instructions. The batteries can be removed and re-connected as previously detailed in this manual.
6. The EP203 panel can be wiped clean using a slightly damp soft cloth.
   *CAUTION: Detergents, scouring materials, or solvents should not be used to clean the panel and water MUST NOT enter the panel.*
7. Periodic, planned maintenance should be carried out on the system to ensure the system is functioning correctly and limit the consequences of faults. The maintenance tests must be carried out in accordance with local regulations. Details of tests, maintenance work and false alarms are logged in the User Manual/Log Book (Document No. DFU0002031).
APPENDICES

APPENDIX 1 – Standby Battery Calculation Guide

The standby time of the EP203 panel after the mains has failed depends on the quiescent loading of the panel, the alarm load of the panel and the capacity of the batteries.

**Note:** LPCB approved systems must use 7Ahr batteries (YUASA Type NP7-12).

To determine the capacity of batteries required for any given standby period, the following formula should be used:

\[
\text{Battery capacity (in Ahr)} = 1.25 \times [(T \times A) + (SL \times RT) + H \times (P + Z + RSUs + ESUs)]
\]

The multiplier 1.25 is present to account for lost capacity over the life of the batteries.

- **T** = Amount of time required for the alarm
- **A** = Total alarm current of panel sounders
- **SL** = Total alarm current of solenoid
- **RT** = Solenoid activation time
- **H** = Number of hours standby required
- **P** = Quiescent current of the panel = 40mA (0.040A)
- **Z** = Total quiescent current of all zone devices
- **RSUs** = Total quiescent current of RSUs
- **ESUs** = Total quiescent current of ESUs

**Example:**
The panel has detectors consuming a total of 1mA (0.001A), 5 RSUs each consuming 0.01A and 5 ESUs each consuming 0.005A.

In alarm, there will be a solenoid load of 1A with a solenoid activation time of 5 secs (0.00139hrs), a conventional sounder load of 200mA (0.20A). The required standby time is 24 hours and the required alarm time is 0.5 hours.

- Calculate the alarm capacity: \((T \times A) + (SL \times RT)\)
  \[T = 0.5\text{hrs}; A = 0.20\text{A}; SL = 1\text{A}; RT = 0.00139\text{hrs}\]
  \[
  \text{The alarm capacity} = (0.5 \times 0.20) + (1 \times 0.00139)
  = 0.10139 \text{ Ahr}
  \]
- Calculate the quiescent capacity: \(H \times (P + Z + RSUs + ESUs)\)
  \[H = 24\text{hrs}; P = 0.040\text{A}; Z = 0.001\text{A}; RSU load = 5 \times 0.01\text{A}; ESU load = 5 \times 0.005\text{A}\]
  \[
  \text{The quiescent capacity} = 24 \times (0.040 + 0.001 + 5 \times 0.01 + 5 \times 0.005)
  = 2.784 \text{ Ahr}
  \]

Therefore, battery capacity = \(1.25 \times [0.10139 + 2.784]\)
\[
= 3.61 \text{ Ahr}
\]
APPENDIX 2 – Extinguisher Control Panel Wiring Diagram
APPENDIX 3 – Extinguishing Operation Flowchart

1st Zone in Alarm → 1st Stage Output Activated

Zone Coincidence or Manual Release

Start Countdown (Extending Delay) → 2nd Stage Output Activated

Abort Active. Terminate Release, Await Reset

Countdown Running

Countdown Finished. Release Extinguishant

Flow Switch Manually Activated

Flooding Time Running

Flooding Time Finished. Reset or Start Extract

Extract Time Running

Reset
## APPENDIX 4 – Technical Specification

### POWER SUPPLY

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains supply</td>
<td>230Vac, 50/60Hz @ 810mA max.</td>
</tr>
<tr>
<td>Internal power supply</td>
<td>24Vdc nominal</td>
</tr>
<tr>
<td>Power rating</td>
<td>1 max. b* = 1.5A cont., 3A peak, battery peak current limited by 5A battery fuse.</td>
</tr>
<tr>
<td>Battery type</td>
<td>YUASA Type NP7-12 (for LPCB approved systems): 2 x 12Vdc, 7Ahr VRLA type, connected in series.</td>
</tr>
<tr>
<td>Battery charge current</td>
<td>0.7A</td>
</tr>
<tr>
<td>Maximum battery resistance</td>
<td>500mΩ</td>
</tr>
<tr>
<td>Quiescent current drain on mains fail</td>
<td>1 min.* = 40mA approx.</td>
</tr>
<tr>
<td>Mains supply/battery charger monitored for failure</td>
<td>YES</td>
</tr>
<tr>
<td>Batteries monitored for disconnection and failure</td>
<td>YES</td>
</tr>
<tr>
<td>Earth fault monitoring</td>
<td>YES</td>
</tr>
</tbody>
</table>

* Definitions:

I max. a – rated maximum output current which can be supplied continuously.
I max. b – rated maximum output current higher than I max. a, which can be supplied while battery charging is not required.
I min. – quiescent current taken by the EP203 panel.

### DETECTOR CIRCUITS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of conventional detector circuits</td>
<td>3</td>
</tr>
<tr>
<td>Line monitored for open and short circuit faults</td>
<td>YES</td>
</tr>
<tr>
<td>Max. cable length per circuit</td>
<td>250m</td>
</tr>
<tr>
<td>Max. number of smoke/heat detectors per circuit</td>
<td>20</td>
</tr>
<tr>
<td>Zone quiescent detector current per circuit</td>
<td>2mA max. @ 19-28V</td>
</tr>
<tr>
<td>End-line resistor value</td>
<td>6kΩ ±5%, 0.25W</td>
</tr>
</tbody>
</table>

### SOUNDER CIRCUITS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of conventional sounder circuits</td>
<td>3 (two x 1st stage, one x 2nd stage)</td>
</tr>
<tr>
<td>Line monitored for open and short circuit faults</td>
<td>YES</td>
</tr>
<tr>
<td>Sounder output rating</td>
<td>19-28Vdc, fused @200mA per circuit</td>
</tr>
<tr>
<td>Max. sounder cable length per circuit</td>
<td>50m</td>
</tr>
<tr>
<td>Max. number of polarised sounders per circuit</td>
<td>10 @ 20mA each</td>
</tr>
<tr>
<td>End-line resistor value</td>
<td>6kΩ ±5%, 0.25W</td>
</tr>
</tbody>
</table>

### MONITORED INPUTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of monitored inputs</td>
<td>6 (Man. Release, Flow Switch, Low Press., Mode, Hold, Abort)</td>
</tr>
<tr>
<td>Thresholds</td>
<td>8k to 2k ohms (Normal); 1.8k to 200 ohms (Active); 150 to 0 ohms (Short-circuit)</td>
</tr>
<tr>
<td>End-of-line resistor value</td>
<td>6kΩ ± 5%, 0.25W</td>
</tr>
</tbody>
</table>

### AUXILIARY OUTPUTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of auxiliary outputs **</td>
<td>6 (Fire, Local Fire, Extract, 1st Stage, 2nd Stage, Fault)</td>
</tr>
<tr>
<td>Extract time</td>
<td>Adjustable 0-900 seconds (1 second steps)</td>
</tr>
<tr>
<td>Relay contact rating</td>
<td>30Vdc, 1A max.</td>
</tr>
<tr>
<td></td>
<td>** Note: DO NOT switch mains voltages using these outputs. **</td>
</tr>
</tbody>
</table>

** Note: Five additional relay outputs (Reset, Mode, Discharged, Hold, Abort) are available on the EP212 Output Expansion Relay Board.

### REMOTE INPUTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of remote inputs</td>
<td>4 (SIL, AL, FLT, RST)</td>
</tr>
<tr>
<td>Auxiliary output</td>
<td>19-28V, 100mA electronic fuse</td>
</tr>
</tbody>
</table>

### EXTINGUISHER RELEASE OUTPUTS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extinguisher release output</td>
<td>19-28Vdc, rated at 1A for 5mins.</td>
</tr>
<tr>
<td>Extinguisher release time delay</td>
<td>Adjustable 0-60 seconds (1 second steps)</td>
</tr>
<tr>
<td>Extinguisher release duration</td>
<td>Adjustable 1-300 seconds (1 second steps)</td>
</tr>
<tr>
<td>Extinguisher release flooding time</td>
<td>Adjustable 60-1740 seconds (1 second steps)</td>
</tr>
<tr>
<td>Extinguisher output end-of-line</td>
<td>System Line Terminator (Part No. EP214)</td>
</tr>
</tbody>
</table>

### FUSES Compliant with IEC (EN60127 Pt2)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mains supply fuse (F1)</td>
<td>1A HRC, 20mm ceramic</td>
</tr>
<tr>
<td>Battery fuse (F2)</td>
<td>5A F; 20mm glass</td>
</tr>
<tr>
<td>Auxiliary output fuse</td>
<td>100mA electronic</td>
</tr>
<tr>
<td>Sounder circuit fuse</td>
<td>200mA per circuit</td>
</tr>
</tbody>
</table>
### APPENDIX 4 – Technical Specification (continued)

#### CONTROLS & INDICATORS

<table>
<thead>
<tr>
<th>Access Level 'menu</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status Display Unit</strong></td>
<td>128 x 64 pixel graphic LCD unit, two-colour backlight</td>
</tr>
</tbody>
</table>
| **Access Level 1 menu** | • Display Faults  
• Display Dis/mnt  
• Zones in Test  
• Lamp Test  
• Alarm Counter |
| **Access Level 2 menu** | • Display Faults  
• Display Dis/mnt  
• Zones in Test  
• Lamp Test  
• Alarm Counter  
• Set Time/Date  
• Event Log  
• Disp Contrast  
• Disablesments |
| **Access Level 3 menu** | • Display Faults  
• Display Dis/mnt  
• Zones in Test  
• Display RSUs  
• Disablesments  
• Commissioning  
• Engineering |
| 'Controls (2 x keyswitches)' | • manual only, or manual & automatic. |
| 'Controls (pushbuttons)' | • menu, silence internal sounder, control panel reset, silence/resound sounders.  
• scroll (up), scroll (down), escape, accept.  
• Extinguisher Release (housed in yellow casing).  
• general fire, fire zones (x3).  
• general disablement, zone fault/disable/test (x3).  
• hold, first stage output, release imminent (x2), extinguishant released, abort.  
• disablesments: extinguishant release, manual release, first stage output, second stage output, sounder.  
• manual only, manual & automatic, supply present, power supply fault, accessed, test, general fault, system fault, delays, sounder fault, flooding zone fault, low pressure fault. |
| Indicators (LEDs) | • number of volt-free relay outputs  
• 5 (Reset, Mode Switch, Discharged, Hold, Abort) |

#### DIMENSIONS & WEIGHT

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions of back box</strong></td>
<td>439mm(w) x 276mm(h) x 70mm(d) approx. (metal)</td>
</tr>
<tr>
<td><strong>Dimensions of lid</strong></td>
<td>467mm(w) x 293mm(h) x 29mm(d) approx. (plastic)</td>
</tr>
<tr>
<td><strong>Weight (without batteries)</strong></td>
<td>4.2kg</td>
</tr>
</tbody>
</table>

#### INTERNAL CONTROL (pushbutton) – Access level 3 switch (located on Main Control PCB)

#### OPERATING CONDITIONS

The control panel enclosure has an IP30 rating and is designed for indoor use only. The components are selected to operate within their specification when the environmental conditions outside the enclosure comply with class 3K5 of IEC 721-3-3 : 1978. Temperature Range: -5 to +40°C. Maximum relative humidity: 95%.

#### OPTIONAL OUTPUT EXPANSION RELAY BOARD - Part No. EP212

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of volt-free relay outputs</strong></td>
<td>5 (Reset, Mode Switch, Discharged, Hold, Abort)</td>
</tr>
</tbody>
</table>

#### OPTIONAL REMOTE STATUS UNIT (RSU) – Part No. EP210S (surface)/EP210F (flush)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RSU connection</strong></td>
<td>2-wire RS485 + 2-wire power (24V)</td>
</tr>
<tr>
<td><strong>RSU power output</strong></td>
<td>19.28Vdc, 200mA electronic fuse</td>
</tr>
<tr>
<td><strong>Max. number of RSUs</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Number of monitored inputs</strong></td>
<td>3 (Abort, Hold, Mode)</td>
</tr>
<tr>
<td><strong>Status Display Unit</strong></td>
<td>128 x 64 pixel graphic LCD unit, two-colour backlight</td>
</tr>
<tr>
<td><strong>Dimension of surface-mount enclosure</strong></td>
<td>160mm(w) x 240mm(h) x 51mm(d) approx. (metal)</td>
</tr>
<tr>
<td><strong>Dimension of flush-mount enclosure</strong></td>
<td>175mm(w) x 250mm(h) x 53mm(d) approx. (metal)</td>
</tr>
</tbody>
</table>

#### OPTIONAL ECONOMY STATUS UNIT (ESU) – Part No. EP211

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESU connection</strong></td>
<td>2-wire power (24V) + 2-wire mode select</td>
</tr>
<tr>
<td><strong>ESU power</strong></td>
<td>100mA electronic fuse</td>
</tr>
<tr>
<td><strong>Max. number of ESUs</strong></td>
<td>8</td>
</tr>
<tr>
<td><strong>Dimension of flush-mount enclosure</strong></td>
<td>87mm(w) x 87mm(h) x 35mm(d) approx. (plastic)</td>
</tr>
</tbody>
</table>